

ABSTRACT

Background: The only way to save the life of a patient with acute aortic dissection type A (by Stanford) is surgery. The numbers of postoperative mortality and the frequency of postoperative complications still high. Hospital mortality is 15-20%. Questions of the internal organs protecting tactics during surgery, the need to clamp the aorta or use open technique, the necessity of deep hypothermia for circulatory arrest, a certain temperature mode are debated.

Methods: During 2012-2018 45 patients with AAD type A (by Stanford) underwent surgery in our clinic. Men were 36 (80%), women - 9 (20%). The age of patients ranged from 32 to 76 years. 1 patient was operated in subacute phase of dissection, 44 patients – in acute, 32 of them – in the period up to 5 days from the dissection. 22 patients were operated under deep hypothermia, unilateral selective antegrade cerebral perfusion, using the open aorta technique and 2 patients underwent surgery using circulatory arrest (Group A). Since 2016 patients with AAD type A were operated without using deep hypothermia with femoral and subclavian cannulation (Group B).

Results: Out of 45 patients with Acute Aortic Dissection type A, 21 patients were operated on with the use of moderate hypothermia. Mortality in this group was 9.52% (2 patients). Bleeding occurred in 1 (4.76%) patient. Neurological disorders were found in 3 (14.28%) patients. The duration of intervention was reduced to 6±0.5h, mechanical ventilation – to 38.8±28.5h, the time in the ICU – to 4±1,4d.

Conclusions: The patients with AAD type A, stable in hemodynamic parameters, can be operated by using moderate hypothermia, which reduces the risk of dangerous complications associated with the use of deep hypothermia.

BACKGROUND

Modern possibilities in diagnostics, increased life expectancy, the prevalence of arterial hypertension contribute to the growth of Acute Aortic Dissection. The only way to save a life of a patient with AAD type A (by Stanford) is surgery. Despite medical care improvements, the numbers of postoperative mortality (15-20%) and the frequency of postoperative complications are still high.

BACKGROUND

Issues of internal organs protection during surgery, the need to clamp the aorta or use an open technique, the necessity of deep hypothermia and circulatory arrest are debatable.

PURPOSE

To assess the possibility of treating patients with Acute Aortic Dissection type A with moderate hypothermia.

METHODS

During 2012-2018 45 patients with AAD type A (by Stanford) underwent surgery in our clinic.

Male group consisted of 36 patients (80%), female – 9 (20%). The age of patients was 32-76 years. 1 patient was operated in subacute phase of dissection, 44 patients – in acute.

In group A the main cause of adverse outcomes of surgery was hypocoagulable bleeding in 11 (45,8%) patients. All of these patients were operated under deep hypothermia, unilateral selective antegrade cerebral perfusion, using the open aorta technique (22 patients in total) and 2 patient underwent surgery using circulatory arrest. Neurological complications occurred in 19 patients. The duration of the operation using the method of deep hypothermia averaged to 8±4,5h. Considering the duration of ICU stay for 8±1.5 days, and mechanical ventilation (60.8±49.8h).

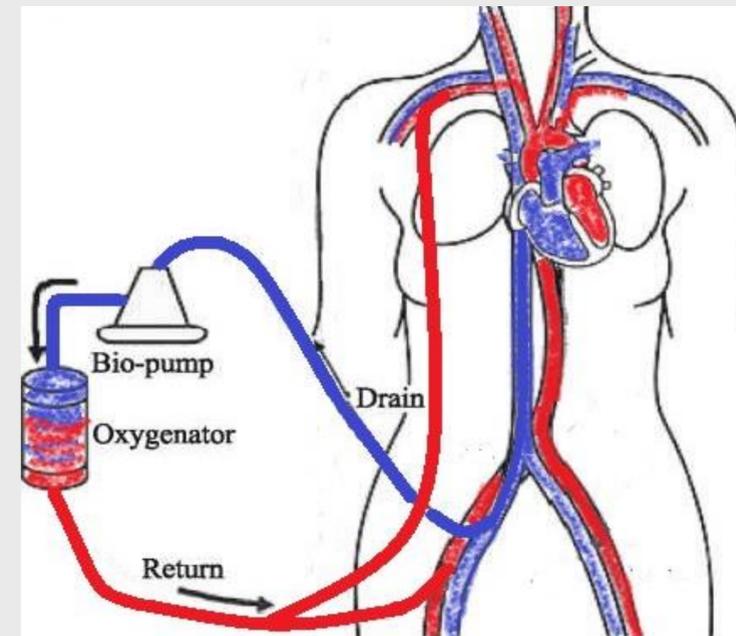
METHODS

In 2016 we began to give preference to surgical intervention without using deep hypothermia (group B).

Cannulation of the left subclavian and femoral arteries was performed before the sternotomy (figure).

The aorta was mobilized up to the descending part, the brachiocephalic vessels were banded using tourniquets. All manipulations were performed under conditions of moderate hypothermia. The aortic arch revision was performed at the time of the agreed bypass stop and took 35±12s. After that, a decision on further surgical tactics was made.

Figure: Scheme of cannulation during AAD type A repair after 2016.



RESULTS

Out of 45 patients with Acute Aortic Dissection type A, 21 patients were operated on with the use of moderate hypothermia.

Mortality in this group was 9.52% (2 patients). Bleeding occurred in 1 (4.76%) patient. Neurological disorders were found in 3 (14.28%) patients.

The duration of intervention was reduced to 6±0.5h, mechanical ventilation – to 38.8±28.5h, the time in the ICU – to 4±1,4d (table).

Table: Results of moderate hypothermic circulatory arrest using

	Group A	Group B	P-Value
Bleeding	11	1	0,002*
Neurological disorders	19	3	0,001*
Surgery duration (hours)	8±4,5	6±0,5	0,661
Mechanical ventilation (hours)	60,8±49,8	38,8±28,5	0,550
ICU stay (days)	8±1,5	4±1,4	0,054*

CONCLUSION

The patients with AAD type A, stable in hemodynamic parameters, can undergo surgery using moderate hypothermia, which reduces the risk of dangerous complications associated with the use of deep hypothermia.

DISCLOSURES

There is no conflict of interests between authors.